

Sore Throat

Roger Zoorob, Monty VanBeber, and
Ila Patel

Sore throat is a common complaint in primary care clinical practice. Although most acute pharyngitis is self-limited, the importance of its diagnosis lies in the fact that antibiotics may be needed to prevent complications of group A β -hemolytic streptococcal infection. Less common causes include GERD, allergic rhinitis, dental disease, and neoplastic causes.

Rarely, sore throat can be caused by an immediately life-threatening condition such as epiglottitis or peripharyngeal fascial space infections.

BACTERIAL PHARYNGITIS

Most sore throats are viral; however, about 20% are related to bacterial infection with the majority being group A streptococcus (GAS) in all ages, more so between 5 and 18 years old.

Symptoms

- Sore throat +++++
- Absence of cough* +++
- Fever by history* +++
- Headache
- Malaise
- Chills
- Rash

Signs

- Pharyngeal erythema
- Tonsillar exudates* +++
- Cervical adenopathy* +++
- High-grade fever
- Diffuse “sandpaper” rash (scarlet fever)
- Grayish membranes (*Corynebacterium diphtheriae*) +++
- Associated urethritis or vaginitis (gonococcal, chlamydia)

Workup

- Throat cultures are considered gold standard ++++
- Rapid streptococcal antigen test (RSAT) ++++
- If *Neisseria gonorrhoeae* is suspected, a Gram stain and throat culture on Thayer-Martin plate are required.

*Three out of four present equal positive predictive value for group A streptococcal pharyngitis of 40% to 60%.

Comments and Treatment Considerations

- Identification of GAS is the primary goal. If left untreated it may lead to suppurative or nonsuppurative sequelae.
- Treatment of GAS includes penicillin V 250 mg to 500 mg orally twice a day for 10 days, IM benzathine penicillin 1.2 million units once, or macrolides such as erythromycin 500 mg orally twice daily for individuals with penicillin allergy.
- *N. gonorrhoeae* is a relatively rare cause of pharyngitis. Clinicians must obtain pertinent history during the initial evaluation (oral sex, recent STD exposure, or sexual abuse). Uncomplicated infection may be treated with a single dose of ceftriaxone 250 mg IM or a fluoroquinolone such as ciprofloxacin 500 mg orally in a single dose. Resistance to fluoroquinolones is growing. Concomitant treatment of chlamydia infection is warranted.
- Diphtheria is caused by *C. diphtheriae*. Treatment includes hospitalization with close monitoring for systemic disease. Further treatment with antitoxin, IM or IV infusion, and erythromycin or penicillin orally for 2 weeks is used during the acute phase of the disease. Immunization is the key to prevention.

PERIPHARYNGEAL SPACE INFECTIONS

Infections in the peripharyngeal fascial spaces often arise from foci in the gingiva, tonsils, or sinuses, and may present as sore throat. Peritonsillar and retropharyngeal abscesses, as well as submandibular space infections (e.g., Ludwig's angina or abscesses), may all present as a sore throat. Most infections are polymicrobial, and usually involve aerobic and anaerobic bacteria.

Symptoms

- Extreme sore throat ++++
- Neck pain
- Dysphagia

Signs

- Drooling
- Muffled voice
- Fever
- Erythematous pharynx
- Trismus
- Asymmetry of tonsils and contralateral deviation of uvula (peritonsillar abscess)
- Cervical adenopathy ++++
- Submandibular and/or neck swelling

Workup

- Culture of drained pus
- CBC
- US, CT, or MRI

Comments and Treatment Considerations

- In peritonsillar abscess if there is no airway compromise, needle aspiration and outpatient treatment with antibiotics can often be accomplished.
- In most other peripharyngeal space infections, aggressive airway evaluation and management, IV antibiotics, and evaluation for surgical intervention are necessary.
- Complications of peripharyngeal abscesses include septic thrombosis, brain abscess, airway obstruction, and carotid artery involvement.

EPIGLOTTITIS/SUPRAGLOTTITIS

Epiglottitis is an acute, severe, life-threatening condition resulting from an inflammation of the supraglottic structures. It is a cellulitis of the epiglottis, aryepiglottic folds, and other adjacent tissues. Although it occurs in children more than adults, peak incidence in adults is the 35- to 39-year age group.

Symptoms

- Sore throat ++++
- High fever +++++
- Dysphagia ++++++
- Drooling
- Respiratory distress
- Stridor
- Toxic appearance
- Muffled speech

Signs

- Erythematous “cherry red” and edematous epiglottis +++++
- Stridor
- Cervical adenopathy
- Minimal cough
- Toxic appearance
- Increased respiratory effort

Workup

- Blood cultures
- CBC may show leukocytosis and left shift.
- Lateral soft tissue neck x-rays show “thumb sign” +++++ -++++
- Chest x-ray to rule out pneumonia and for tube placement if intubated

Comments and Treatment Considerations

- Emergency inpatient hospital evaluation with intubation equipment at bedside. Keep a child calm in parent's arms. Ensure respiratory and cardiac monitoring.
- Nasotracheal intubation is the preferred way to stabilize the airway but preparing for tracheotomy is warranted.

- Avoid throat examinations and direct attempts to visualize epiglottis because this increases respiratory effort and anxiety and may lead to further airway obstruction.
- Empiric treatment with broad-spectrum antibiotic therapy such as ceftriaxone 50 to 75 mg/kg orally per day in addition to an antibiotic active against MRSA, such as clindamycin or vancomycin is recommended.
- Steroids and racemic epinephrine mixture inhalation are of no benefit.
- Preventive measures include *Haemophilus influenzae* vaccine to all children and rifampin prophylaxis (20 mg/kg/day orally) for 4 days for household and daycare contacts.

VIRAL PHARYNGITIS

Nasal symptoms, such as sneezing, watery nasal discharge, or postnasal drip tend to precede throat symptoms.

Symptoms

- Nasal symptoms
- Throat soreness +++++
- Fatigue
- Malaise ++++
- Nonproductive cough
- Myalgia
- Odynophagia

Signs

- Fever
- Pharyngeal edema
- Pharyngeal erythema
- Pharyngeal exudates or vesicles
- Conjunctival injection
- Palatal petechiae
- Hoarseness
- Tender lymphadenopathy
- Mucosal ulcers
- Splenomegaly (EBV, HIV)

Workup

- Diagnosis is clinical.
- Atypical lymphocytosis more prominent in infectious mononucleosis, acute CMV infection, and acute retroviral infection (such as HIV)
- Rapid streptococcal antigen test and bacterial cultures are negative.
- Heterophil antibody test (EBV)
- PCR techniques can be used for specific virologic diagnosis if required.

Comments and Treatment Considerations

Symptomatic relief is the mainstay of treatment. Rest, fluids, and saltwater gargles are used for soothing effect and symptomatic

relief. Analgesics and antipyretics are prescribed for relief of pain or pyrexia. Ibuprofen and acetaminophen are preferred drugs for symptomatic relief in children and adults along with anesthetic gargles and lozenges containing phenol or menthol. If odynophagia is intense, IV hydration may be necessary. Antibiotics neither hasten the recovery period nor reduce bacterial superinfection.

- Influenzavirus: Pharyngitis and sore throat are present in about 50% of type A influenza. It is a self-limited disease usually resolving within 3 to 4 days. It does not warrant antiviral therapy in healthy individuals. Rimantadine or amantadine can decrease duration of symptoms if administered within 48 hours of onset of illness. Oseltamivir and inhaled zanamivir are newer neuraminidase inhibitors active against both A and B strains. They decrease duration of illness in severely ill patients if administered within 30 hours of onset of symptoms.
- Coxsackieviruses and other enteroviruses cause herpangina and hand, foot, and mouth disease. Treatment is symptomatic.
- HIV: HIV pharyngitis is one of the presenting symptoms of acute retroviral syndrome. It may present as an infectious mononucleosis-like syndrome; 40% to 80% of these individuals develop a generalized maculopapular roseola-like or urticarial-type rash.
- Infectious mononucleosis

Corticosteroids may be indicated in severe tonsillar hypertrophy or impending airway obstruction. Avoidance of contact sports is highly recommended for approximately 6 weeks post infection.

GASTROESOPHAGEAL REFLUX

Chronic pharyngitis may be associated with GERD. Patients may present with a long history of a sore throat and a lump sensation in their throat. Most common symptoms are heartburn, regurgitation, and dysphagia.

Symptoms

- Heartburn
- Chronic sore throat
- Choking with swallowing
- Chest pain
- History of aspiration pneumonia
- Regurgitation
- Dysphagia
- Laryngitis
- Chronic cough

Signs

- Erythematous pharynx

Workup

- Therapeutic trial of H₂-blocker or PPI
- Barium swallow

- Esophageal pH monitoring
- Endoscopy

Comments and Treatment Considerations

- Lifestyle modifications: There is evidence showing improvement with elevation of head of bed and weight loss.
- Diet modifications (chocolate, high-fat foods, alcohol, tobacco, coffee) may be effective.
- Start with H₂-blockers followed by PPIs (more effective); if unsuccessful, patient may require surgery.

NEOPLASM

Tonsillar and oropharyngeal cancer is a rare cause of sore throat. It should be considered in the older adult or younger patient presenting with prolonged history of sore throat or unilateral swelling of one tonsil.

Symptoms

- Hemoptysis
- Difficulty in swallowing
- Pain referred to the ear
- Lump in the neck
- Hoarseness
- Progressive unilateral increase in tonsillar size

Signs

- Hard swelling of the tonsil
- Ulceration
- Cervical lymphadenopathy
- Neck mass
- Tonsillar asymmetry

Workup

- CBC
- Laryngoscopy
- Chest x-ray
- CT scan
- Biopsy

Comments and Treatment Considerations

Management of squamous cell carcinoma of the tonsil and oropharynx is most frequently surgical.

TRAUMA

Trauma is due to physical causes such as penetrating trauma or retained foreign body. Other causes are due to vocal abuse, which may result from shouting. Environmental trauma includes smoke or dry air exposure leading to irritative pharyngitis, or burns from hot or cold liquids.

Symptoms

- Sore throat +++++
- Hoarseness
- Fever
- Respiratory distress
- Cough
- Dysphagia or odynophagia

Signs

- Quality of patient's voice (coarse, rough, weak, wet, or irregular)
- Vocal cord paralysis or nodule on examination

Workup

- Complete examination of laryngopharynx
- X-rays to rule out foreign body
- CT scan or MRI
- CBC
- Biopsy if necessary

Comments and Treatment Considerations

- Avoiding exposure to smoke and air humidification may help in environmental trauma.
- Refer to an ear, nose, and throat (ENT) specialist in case of foreign body or physical trauma.
- Patients with hoarseness for more than 2 weeks should have complete examination of laryngopharynx. CT scans and radiography are not a substitute for direct visual examination.

ALLERGIC RHINITIS/POSTNASAL DRIP

Allergic rhinitis is associated with multiple nasal symptoms. Common allergens that cause seasonal allergic rhinitis are trees, grass, and weed pollen. Indoor allergens caused by dust mites, pets, fungi, and other household items are usually associated with year-round symptoms.

Allergic rhinitis and secondary postnasal drip manifest as sore throat due to chronic irritation to the pharyngeal mucosa.

Symptoms

- Nasal congestion
- Postnasal drip +++
- Pruritus of nose, eyes, and palate
- Sneezing
- Rhinorrhea
- Cough

Signs

- Bluish or reddish discoloration of nasal turbinates +++ - ++++
- Erythematous pharynx
- Sinus tenderness
- Transverse nasal crease

- Allergic shiners
- Postnasal discharge

Workup

- CBC with differential
- Nasal endoscopy
- Nasal smear for eosinophils ++++ - +++++
- IgE levels
- Allergen skin testing +++ -++++
- Sinus x-rays or CT

Comments and Treatment Considerations

- Patients are instructed to locate triggers and limit exposure. Recommendations include using allergy covers on mattresses and pillows, discouraging house pets, limiting smoking exposure, and avoiding use of perfumes.
- Next tier of therapy is pharmacotherapy. Newer second-generation antihistamines are recommended in combination with nasal steroids to treat allergic rhinitis. Some relief may come with mast cell stabilizers or leukotriene modifiers for patients with severe symptoms.
- Immunotherapy is recommended for patients failing both avoidance of allergens and pharmacologic treatment.

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